UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/766,839	01/30/2004	Takamune Suzuki	1341.1180	4580

21171   7590   01/12/2007
STAAS & HALSEY LLP
SUITE 700
1201 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

EXAMINER
VAUTROT, DENNIS L

ART UNIT	PAPER NUMBER
2167	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/12/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

	Application No.	Applicant(s)
	10/766,839	SUZUKI, TAKAMUNE
Office Action Summary	Examiner	Art Unit
	Dennis L. Vautrot	2167

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS,
WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 October 2006*.

2a)☒ This action is FINAL. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1, 3 - 6, & 8 - 13* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 3 - 6, & 8 - 13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

       1.☒ Certified copies of the priority documents have been received.

       2.☐ Certified copies of the priority documents have been received in Application No. _____.

       3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1.   The applicants' amendment, filed 2 November 2006, has been received, entered into the record and considered.

2.   As a result of the amendment, claims 2 and 7 have been cancelled and claims 1, 6, and 11 are amended. Claims 1, 3 – 6, and 8 – 13 are pending in the application.

Response to Arguments

3.   Applicant's arguments with respect to claims 1 – 13 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2.   Claims 1, 3, 4, 5, 6, 8, and 10 – 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Coram et al.** (hereinafter **Coram**, US 2002/0107835) in view of **Kanai** (5,748,985)

3.   Regarding claim 1, **Coram et al.** (hereinafter **Coram**) teaches an application

server that retrieves data from a database using a retrieval request (See page 3,

paragraph [0039] "In operation 202, RS cache 106 receives a database request from

application 102."), which includes a retrieval condition, received from a terminal (See

page 4, paragraph [0040] "For example, in SQL implementations, "SELECT" database

requests are determined to be informational and therefore potential candidates for

cache processing." SQL queries are referred to in the application's specification as a

type of retrieval condition.) and transmits the data retrieved as a retrieval result to the

terminal (See page 4, paragraph [0045] "Result sets generated for informational

database requests are returned to RS cache 106, which then returns the result set to

application 102 in response to the request."), comprising:

        a cache memory that stores in a correlated form the retrieval condition and the

retrieval result (See page 3, paragraph [0035] "For those result sets that are selected for

caching, storing a key based in part or in whole on the associated database request

along with the result set is used to determine whether subsequent requests can be

satisfied by the cached result set."); and

        an update processing unit that reads the retrieval condition from the cache

memory upon fulfillment of the cache update condition, retrieves data as the retrieval

result from the database using the retrieval condition and updates the retrieval result in

the cache memory corresponding to the retrieval condition (See page 4, paragraph

[0048] "As a result, subsequent requests for the invalidated result sets will be processed

by database 104, and will therefore correctly reflect the updated data.")

Coram does not explicitly disclose an update condition setting unit that sets a cache update condition based on a database update condition that indicates when the cache memory is to be updated, wherein the database update condition includes a number of data records updated in the database within a predetermined period.

However, **Kanai** discloses an update condition setting unit that sets a cache update condition [checkpoint] based on a database update condition [checkpoint identifiers] that indicates when the cache memory is to be updated, wherein the database update condition includes a number of data records updated in the database within a predetermined period. (See column 6, lines 7 – 11 "The checkpoints are set, for example, at a fixed interval time or each time a predetermined number of data update operations are accomplished. These points are supervised according to checkpoint identifiers.")

It would have been obvious to one with ordinary skill in the art at the time of the invention to combine **Coram** and **Kanai** because both references are related to cache control methods, and by including the record update condition as disclosed in Kanai, the cache can be more efficient by only updating after a set number rather than after every record update. It is for this reason that one of ordinary skill in the art would have been motivated to include an update condition setting unit that sets a cache update condition based on a database update condition that indicates when the cache memory is to be updated, wherein the database update condition includes a number of data records updated in the database within a predetermined period.

4.   Regarding claims 3 and 8, the combination of **Coram** and **Kanai** teaches when

searching the database, the update processing unit acquires a database update

condition that indicates when the database is updated and the update condition setting

unit sets the cache update condition based on the database update condition acquired

(See **Coram** page 5, paragraph [0051] "If database 104, via triggers, transaction logs,

or some other mechanism were to provide notification of updates to RS cache 106, the

cache could use this information to handle invalidations." Here, the trigger, log, or other

mechanism is what sends the update condition to the cache.)

5.   Regarding claims 5 and 10, the combination of **Coram** and **Kanai** teaches the

update processing unit sets next and subsequent cache update conditions using a date

and a time of the retrieval result updated (See **Coram** page 1, paragraph [0013] "One

conventional approach is to employ a least recently used (LRU) algorithm, where the

most stale result set (i.e., the result set that has gone the longest without being used) is

dropped when the cache reaches maximum capacity...LRU can be implemented with a

simple timestamp." One example of updating the cache is by deleting old result sets, as

occurs here.)

        Regarding claims 6 and 11, the combination of **Coram** and **Kanai** teaches a

cache program and an application server system that stores a retrieval request (See

Coram page 3, paragraph [0039] "In operation 202, RS cache 106 receives a database

request from application 102."), that includes a retrieval condition and that is received

from a terminal (See **Coram** page 4, paragraph [0040] "For example, in SQL

implementations, "SELECT" database requests are determined to be informational and

therefore potential candidates for cache processing." SQL queries are referred to in the

application's specification as a type of retrieval condition.); and a retrieval result

retrieved using the retrieval request in a correlated form in a cache memory (See

Coram page 3, paragraph [0035] "For those result sets that are selected for caching,

storing a key based in part or in whole on the associated database request along with

the result set is used to determine whether subsequent requests can be satisfied by the

cached result set."); reads a retrieval result from the cache memory when a retrieval

request identical to the retrieval request stored in the cache memory is received (See

Coram page 4, paragraph [0041] "This determination can be made by comparing the

received database request to the request associated with each result set saved in the

RS cache"), and that makes a computer execute:

setting a cache update condition [checkpoint] based on a database update

condition [checkpoint identifiers] that indicates when the cache memory is to be

updated, wherein the database update condition includes a number of data records

updated in the database within a predetermined period (See **Kanai** column 6, lines 7 –

11 "The checkpoints are set, for example, at a fixed interval time or each time a

predetermined number of data update operations are accomplished. These points are

supervised according to checkpoint identifiers."); and

reading the retrieval condition from the cache memory upon fulfillment of the

cache update condition, retrieving data as the retrieval result from the database using

the retrieval condition, and updating the retrieval result in the cache memory corresponding to the retrieval condition (See **Coram** page 4, paragraph [0048] "As a result, subsequent requests for the invalidated result sets will be processed by database 104, and will therefore correctly reflect the updated data.")

6.   Regarding claim 12, the combination of **Coram** and **Kanai** teaches the cache update condition of each application server differs from the cache update condition of any other application server (See **Coram** page 4, paragraph [0050] "According to an example technique, results sets stored in RS cache might be invalidated after some period of time. This is relatively simple to implement and does not require a synchronization protocol between multiple RS caches 106 servicing a single database." In other words, the different applications with their various caches can all be updated using different conditions and do not be synchronized at any given time.)

7.   Regarding claim 13, the combination of **Coram** and **Kanai** teaches the cache update condition of all the application servers is identical (See **Coram** page 5, paragraph [0052] "A third option is available whenever all transactional database requests pass through one of the RS caches 106." Here the condition will be identical because they are all passed through the cache.)

8.   Claims 4 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Coram** in view of **Kanai** as applied to claims 1 and 6 above, and further in view of

Torrey et al. (US 2006/0034267). **Coram** and **Kanai** teach an application server

substantially as claimed. **Coram** and **Kanai** do not explicitly disclose a user sets the

cache update condition. However, **Torrey et al.** teaches a user sets the cache update

condition. (See page 6, paragraph [0115] "The maintenance system provides access to

control the refresh parameters, update conditions, and other maintenance conditions for

the LNP cache 108.") It would have been obvious to one with ordinary skill in the art at

the time of the invention to combine the teaching of **Coram** and **Kanai** with the user

controlled update condition as disclosed in **Torrey et al.** because allowing the users of

the database to control the frequency or the conditions upon which the cache is updated

from the database allows for the greatest control over the balance between efficiency of

the system and the need for up-to-date information to be available directly from the

cache as much as possible. It is for this reason that one of ordinary skill in the art would

have been motivated to include a user setting the cache update condition.

Conclusion

9.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis L. Vautrot whose telephone number is 571-272-2184. The examiner can normally be reached on Monday-Friday 9:00-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Cottingham can be reached on 571-272-7079. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Dv
8 January 2007

Pirke S Nassum
Primary Examiner
Art Unit 2167